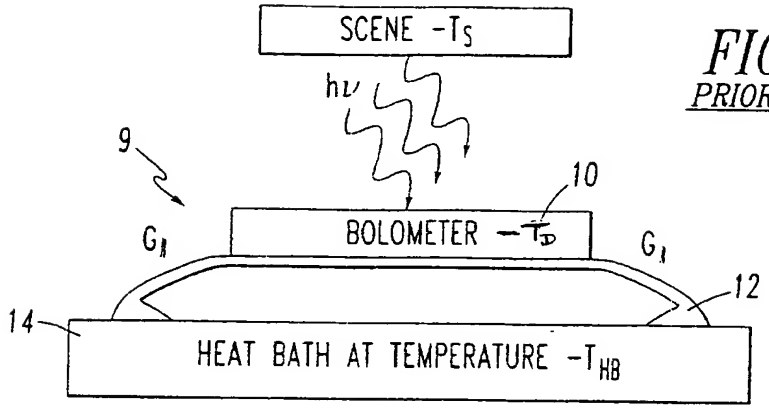


FIG. 1
PRIOR ART

FIG. 2
PRIOR ART

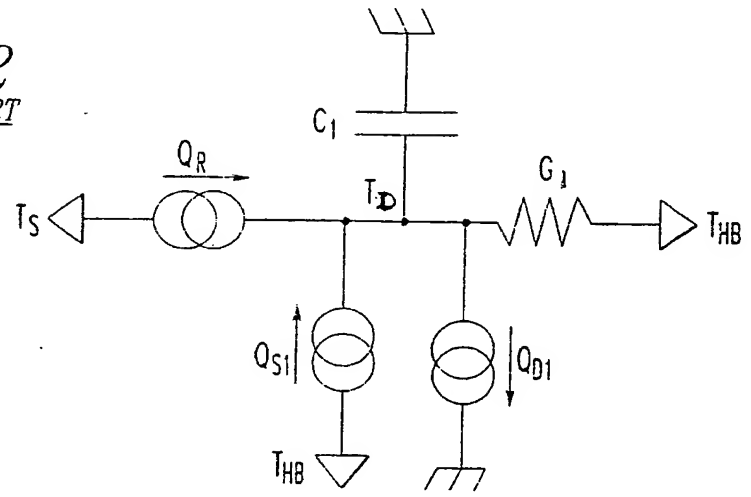
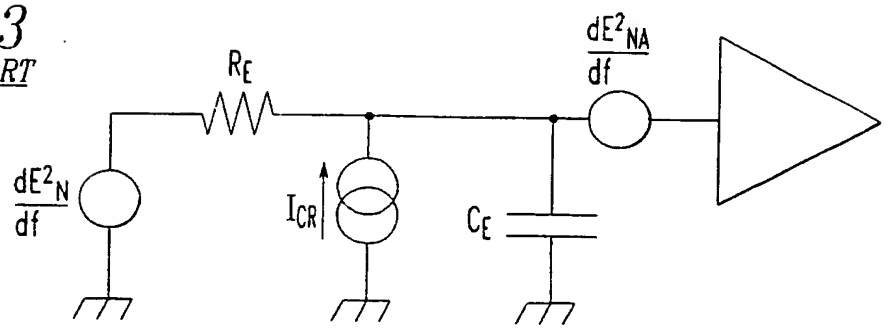


FIG. 3
PRIOR ART



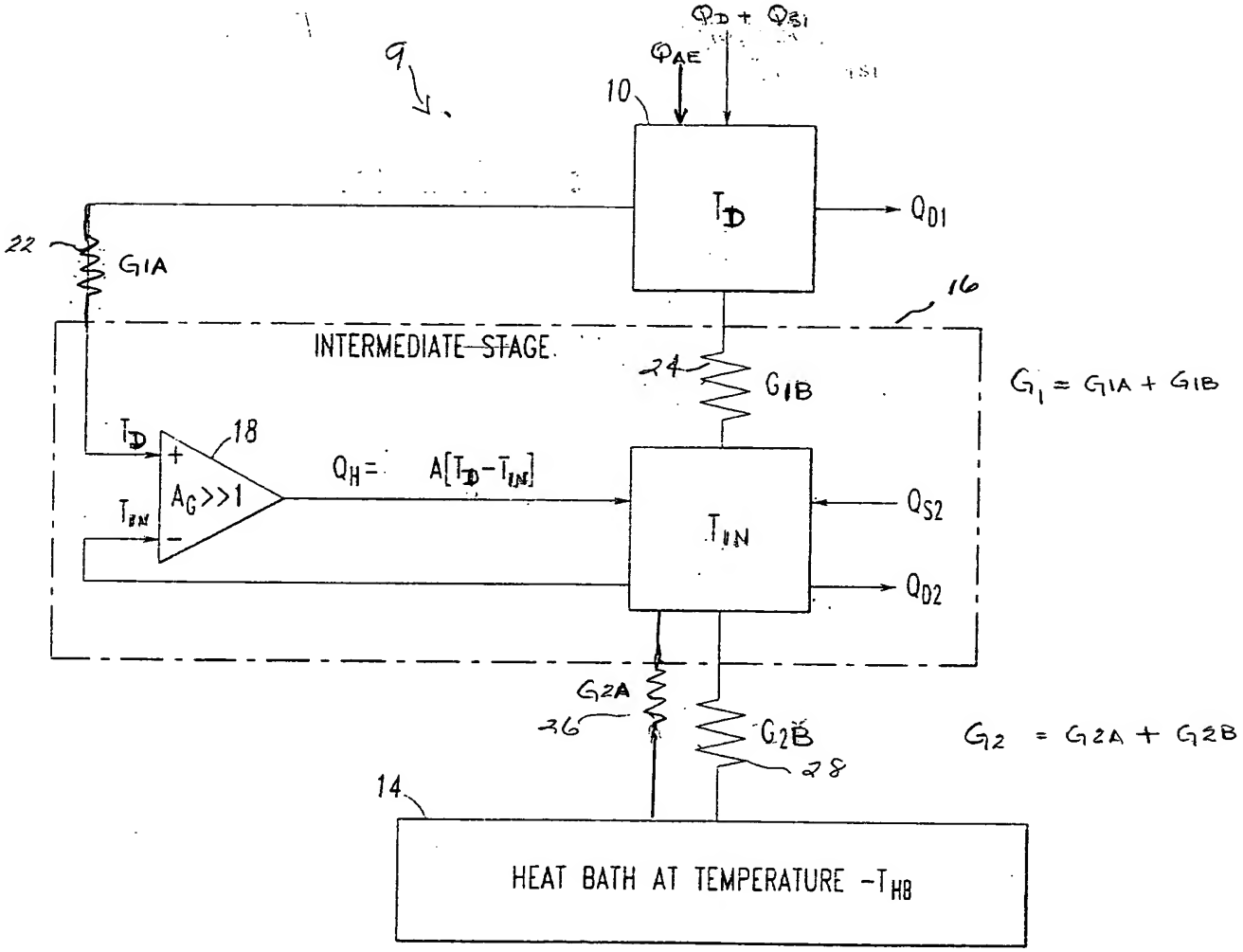

9
10
$Q_D + Q_{SI}$
Q_{AE}
T_D
Q_{D1}
22
G_{1A}
16
INTERMEDIATE STAGE
24
G_{1B}
$G_1 = G_{1A} + G_{1B}$
T_D
18
$A_G >> 1$
T_{IN}
$Q_H = A[T_D - T_{IN}]$
T_{IN}
Q_{S2}
Q_{D2}
G_{2A}
26
G_{2B}
28
$G_2 = G_{2A} + G_{2B}$
14
HEAT BATH AT TEMPERATURE $-T_{HB}$

FIG.4

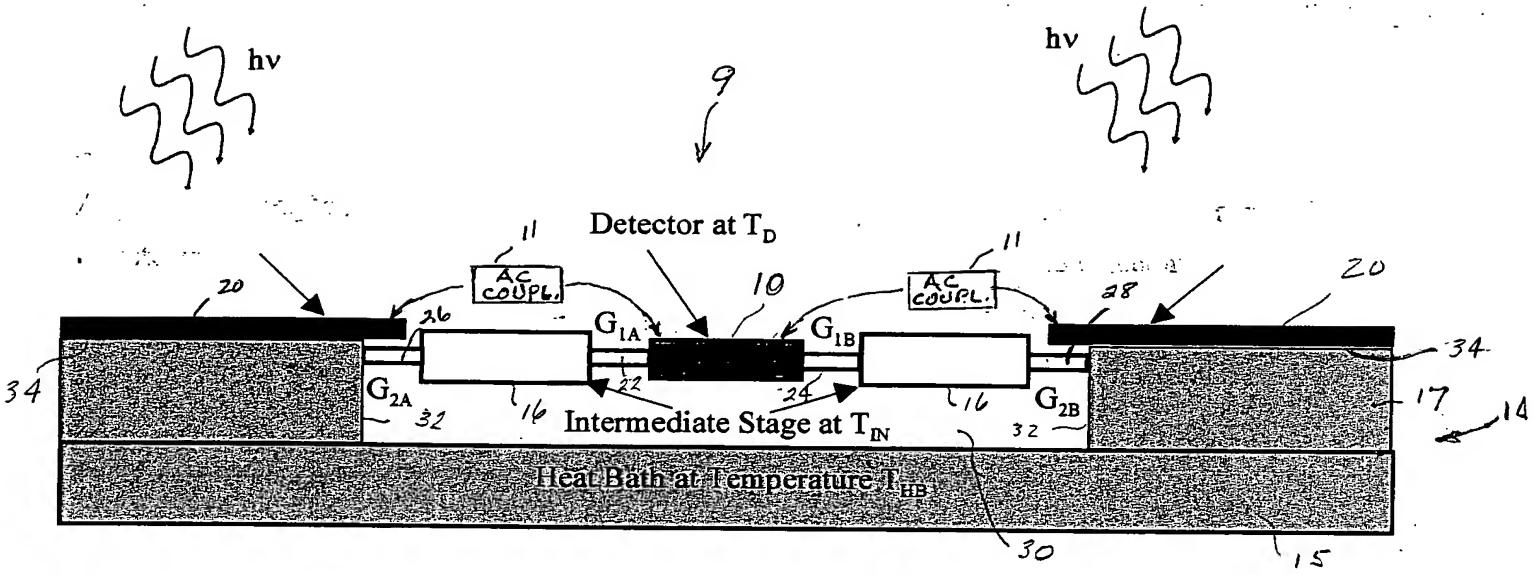
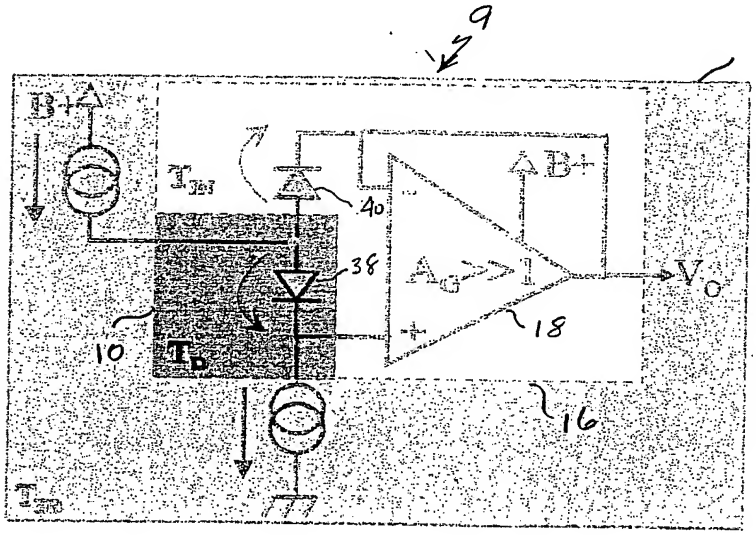


FIG. 5



Amplifier Input: $V_{IN}=\Delta\Phi_D(T_D)-\Delta\Phi_{IN}(T_{IN})$

Amplifier Output: $V_O=A_G[\Delta\Phi_D(T_D)-\Delta\Phi_{IN}(T_{IN})]$

Heater Power: $Q_H=I_H V_O$

FIG. 6

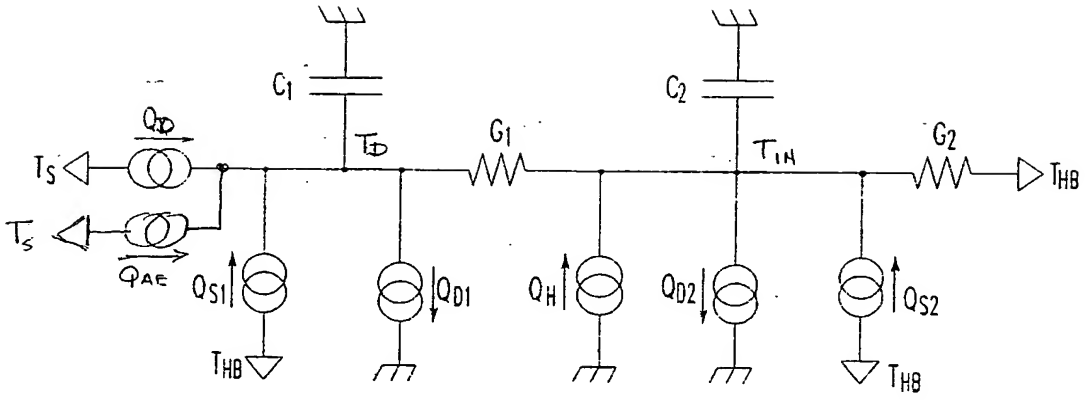

C1
C2
QD
TS
TD
G1
TIN
G2
THB
TS
QAE
QS1
QD1
QH
QD2
QS2
THB
THB

FIG. 7

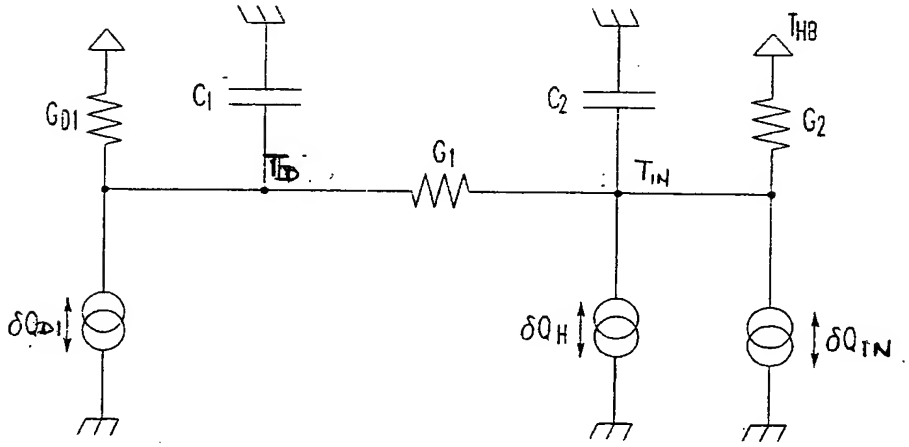

GD1
C1
C2
THB
G2
TD
G1
TIN
δQD1
δQH
δQIN

FIG. 8

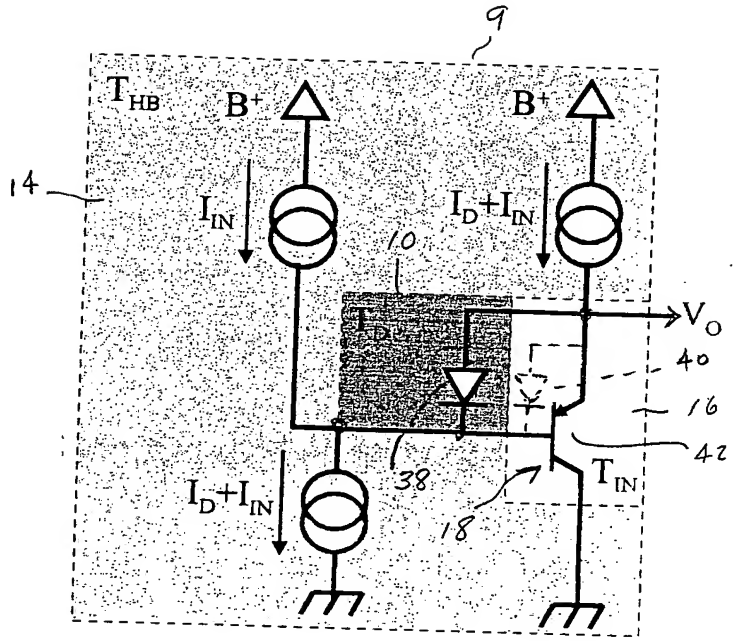

9
T_{HB}
B^+
B^+
14
I_{IN}
I_D+I_{IN}
10
T_D
V_O
40
16
42
38
T_{IN}
I_D+I_{IN}
18

FIG. 9

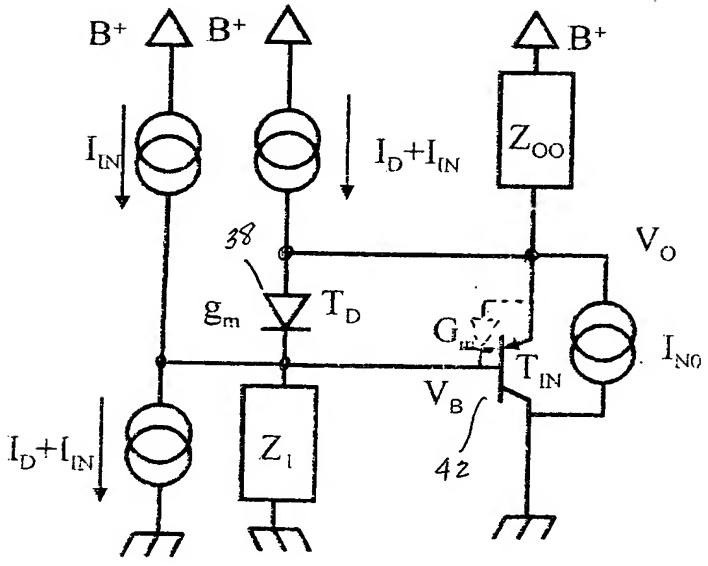

B^+
B^+
B^+
I_{IN}
I_D+I_{IN}
Z_{OO}
38
V_O
g_m
T_D
G_m
T_{IN}
I_{NO}
V_B
I_D+I_{IN}
Z_I
42

FIG. 10

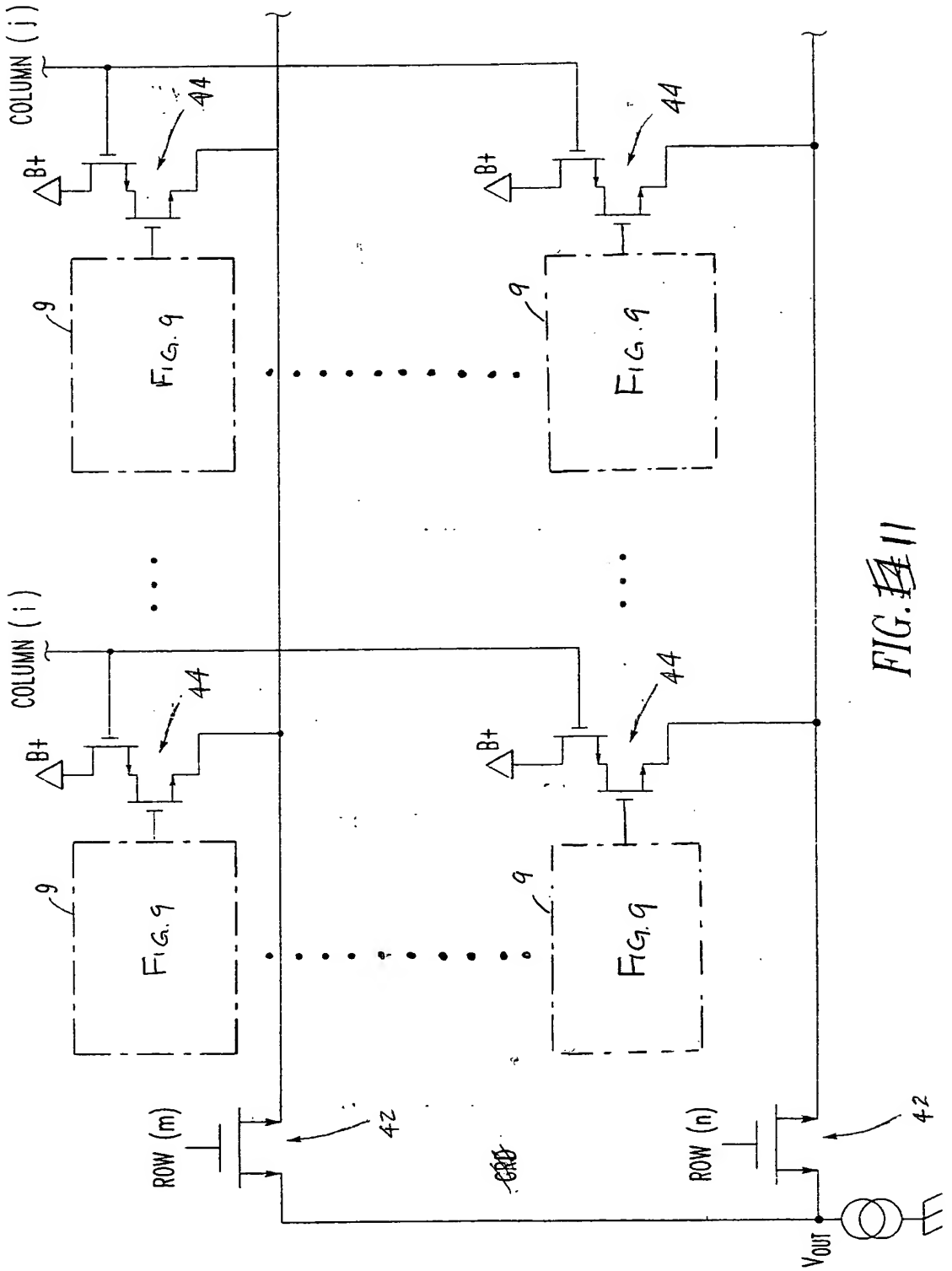

COLUMN (i)
COLUMN (i)
B+
B+
B+
B+
44
44
44
44
9
9
9
9
FIG. 9
FIG. 9
FIG. 9
FIG. 9
ROW (m)
ROW (n)
42
42
V_{OUT}

FIG. 11